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ABSTRACT

Although current research has not shown prevailing effects of the preschool experience on overall achievement scores, it does indicate a positive effect on language related skills, particularly for males. This study examined the relationship between language related achievement test scores between those first graders with preschool experience and those without. Subjects from Antwerp Elementary in Antwerp, Ohio, a small rural community, were 19 first-graders who had attended preschool and 39 who had not. Scores from the Primary I level of the Metropolitan Achievement Test, sixth edition, were compared between the two groups. Analyses revealed that there was no significant difference among the two groups of children. The results suggest that language achievement test scores are not indicative of preschool effectiveness. (HTH)

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The Effects of Preschool Experiences on Academic Achievement of First Graders

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Running head: PRESCHOOL EFFECTS ON SCHOOL ACHIEVEMENT

Abstract

The purpose of this study was to determine if there was a significant difference between language related achievement test scores between those first graders with preschool experiences and those without. The scores from the Primary I level of the Metropolitan Achievement Test, Sixth edition, were used to compare the 19 students with preschool to the group of 39 students without. The results of the *t* tests performed on the scores showed that there was no significant difference among the two groups of children. It was concluded that achievement test scores were not indicative of preschool effectiveness.

The Effects of Preschool Experiences on Academic Achievement of First Graders

The most general goal of early childhood education has been and still is to improve the lives of children. During the evolution and development of this field an emphasis has been placed on evaluating the effectiveness of such programs in meeting this goal.(Zigler & Berman, 1983) It was believed that the success of intervention efforts could be assessed by determining gains in IQ and school achievement.

> Since the IQ is known to predict scholastic performance better than any other single measurable attribute of the child, it is believed, whether rightly or wrongly, that if the child's IQ can be appreciably raised, academic achievement by and large will take care of itself, given normal motivation and standard instruction. (Jensen, 1969, p. 5)

After reviewing studies concerning boosting IQs of children through early childhood enrichment Jensen concluded that the pay-off of preschool and compensatory programs in terms of IQ gain is small and he agreed with Bereiter and Engelmann, whose study he was reviewing, that scholastic performance can be boosted more in the early years than can IQs. "They comment that the children's IQs were still remarkably low for children who performed at the academic level actually attained in the program. Their

scholastic performance was commensurate with that of children 10 or 20 ponts higher in IQ."(Jensen, 1969, p. 106)

A variety of research studies have been conducted at various grade levels to compare the achievement of students who have had preschool experiences with those who have not. In Evans' (1985) longitudinal follow-up study of low income minority group children, sixth and eighth grade measures of reading and arithmetic achievement were used to compare the groups of students. No general carry over effect for school achievement into the middle school years was shown, but male subjects with no preschool experience "presented a significantly lower achievement pattern at grades 6 and 8 than did either their preschool counterparts or females without preschool."(p. 199)

Research has indicated that "school achievement and many life successes for disadvantaged children are positively influenced by a good preschool experience." (Larsen, Hite, & Hart, 1983, P. 345) Most of the research has focused on the high risk students. In order to determine the amount of influence preschool experiences would have on educationally advantaged children Larsen and Robinson (1989) conducted a longitudinal study on the effects of preschool attendance upon achievement scores for second and third grade low risk children. No preschool effect upon achievement scores was indicated for females; however, males who attended preschool scored significantly higher on the language related components of the

achievement measures than did males who had not attended preschool.

Some other research studies have included data regarding the achievement of students at the first grade level. Jensen (1969) reported on Martin Deutsch's intensive preschool enrichment program in his review. The subjects in his study were African-American children from a poor neighborhood in New York City. Those who had experienced three years of enrichment showed a significant gain over the control group in reading achievement by the end of first grade. Similar results were obtained by Miller and Bizzell (1983) in their study.

Although current research has not shown prevailing effects of the preschool experience on overall achievement scores, it does indicate a positive effect on language related skills. This appears to be especially true for the male population.

The objective of this study was to determine if preschool experiences had any effect on the school achievement of first graders. In this case school achievement was defined by the performance of the students on the Metropolitan Achievement Test, Sixth edition (MAT6).

Hypothesis

The research upon which this study was based has led to the following hypothesis: There will be a significant difference between language related MAT6 scores for first graders who have had preschool experiences and those who have not.

Method

Subjects

The subjects for this study were first graders, predominately caucasian, from Antwerp Elementary in Antwerp, Ohio, a small rural community. Of the 63 first grade students 58 participated in the study as there were no scores available for four of them and one was not included upon the request of his or her parents. The student body was composed of 26 girls, 10 of which had attended preschool, and 32 boys, 9 of which had attended preschool. The students ranged in age from 72 months up to 93 months of age with the mean age being 85.35 months with a standard deviation of 4.3 months.

Instrument

The MAT6 survey battery consists of eight levels and spans from kindergarten through the twelfth grade. (Nitko, 1989) The MAT6, Primary I level was used to measure students' achievement of basic skills in the following curricular areas: reading, vocabulary, spelling, language, mathematics, science, and social studies. This level of the test employed the use of multiple choice items. After analyzing curriculum materials, state guidelines, syllabuses, and educational publications preliminary designs of the test were developed. Then curriculum experts from around the United States reviewed them and modifications were made. (Prescott, Balow, Hogan, & Farr, 1986) However, "no data

are shown as to the extent to which the experts agreed upon the appropriateness of the materials."(Rogers, 1989, p. 516) This data would be helpful in determining the content validity of the tests.(Rogers, 1989)

Two measures of reliability were reported for each subtest. "KR20 reliability coefficients are reported for every grade, while alternate form coefficients are reported for one selected grade within each level. Most of the subtest values are between .80 and .89, departures being more often in the higher direction."(Rogers, 1989, p. 518)

Procedures

The MAT6 was administered to the first grade students in the Antwerp Local School District in March of 1994. The National Percentile Rank scores for the following areas were then recorded for each first grader: Total Reading, Total Mathematics, Total Language, Total Basic, and Total Complete Battery. The Total Basic Battery scores were obtained by adding the Total Reading, Total Mathematics, and Total Language Scores. The Total Complete Battery scores were obtained by adding the Science and Social Studies scores to the Total Basic Battery score.(Farr, Prescott, Balow, & Hogan, 1987) It was also noted whether or not the students attended preschool.

Results

The data was computed in terms of means, medians, and standard deviations. The *t* test was applied at the .05 level of confidence to determine if there was any statistically significant difference between the mean scores. While *t* tests were employed "more conservative researchers might prefer Bonferroni."(Wood, 1994)

It was found that the mean percentile rank scores of students with and without preschool experiences do not differ significantly in any of the MAT6 subtests, including the area of language. However, it can be observed that for the Language percentile rank there was significantly more variation in the preschool group than in the group without preschool.(Fmax=2.27, p=.03 for percentile rank). Therefore, the original hypothesis that stated there will be a significant difference between language related MAT6 scores for first graders who have had preschool experiences and those who have not was not supported.

Place Table 1

about here

Discussion

Although previous research has indicated some positive effects of preschool experiences on language related skills the results of this study have failed to support the hypothesis that first graders with preschool experience would differ significantly in their performance on the MAT6 in language related areas as compared to first graders without preschool. The results suggest that school achievement may not be the best indicator of early childhood program effectiveness if used in isolation. A more complete representation may be provided if school achievement is studied in conjunction with other variables such as social competence and cost effectiveness as well as other ecologically valid measures.(Zigler & Berman, 1983) In order to determine the immediate effectiveness of preschool experiences on children it is recommended that assessments and comparisons take place prior to any kindergarten experiences.

This study only involved the students from one school and there was little cultural diversity therefore the results would not be easily generalized. Another limitation is that there was only evidence of preschool experiences within that school building. Future study should involve a more diverse sample and include a thorough investigation of each child's early childhood program involvement from birth through five years of age.

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Table 1

Metropolitan Achievement Test National Percentile Rank Scores of First Graders With and Without Preschool Experiences

	Had Preschool (n=19)			No Preschool (n=39)				
MAT6 Scores	Md	M	SD	Md	M	SD	t	p
Total Reading	57.00	62.05	32.81	66.00	63.64	26.01	.20	.84
Total Math	80.00	68.11	30.02	71.00	69.67	26.16	.20	.84
Total Language	78.00	66.47	28.35	61.00	58.10	18.81	-1.34	.19
Total Basic	68.00	65.47	30.71	65.00	64.90	23.36	-.08	.94
Total Complete	68.00	66.32	31.75	69.00	67.10	25.07	.10	.92